

VU Research Portal

Episodes of low back pain - A proposal for uniform definitions to be used in research

de Vet, H.C.W.; Heijmans, M.W.; Dunn, K.M.; Pope, D.P.; van der Beek, A.J.; Macfarlane, G.J.; Bouter, L.M.; Croft, P.R.

published in

Spine

2002

DOI (link to publisher)

[10.1097/00007632-200211010-00016](https://doi.org/10.1097/00007632-200211010-00016)

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

de Vet, H. C. W., Heijmans, M. W., Dunn, K. M., Pope, D. P., van der Beek, A. J., Macfarlane, G. J., Bouter, L. M., & Croft, P. R. (2002). Episodes of low back pain - A proposal for uniform definitions to be used in research. *Spine*, 27(21), 2409-2416. <https://doi.org/10.1097/00007632-200211010-00016>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

Episodes of Low Back Pain

A Proposal for Uniform Definitions to Be Used in Research

Henrica C. W. de Vet, PhD,* Martijn W. Heymans, MSc,*† Kate M. Dunn, MPhil,‡
Daniel P. Pope, PhD,§|| Allard J. van der Beek, PhD,*† Gary J. Macfarlane, PhD,||
Lex M. Bouter, PhD,* and Peter R. Croft, PhD‡

Study Design. Literature review and group discussions.

Objective. To propose uniform definitions for low back pain episodes to be used in research.

Background. Different definitions of episodes have been used in low back pain studies. This hampers comparison of study results. Definitions are proposed for episodes of low back pain, care for low back pain, and work absence because of low back pain.

Methods. In a Medline search, we identified about 1200 papers, of which 81 possibly contained a definition of episodes. In group discussions, we decided which definitions to propose and discussed their applicability.

Results. We found few definitions in the literature. In the group discussions we decided to define an episode of LBP as a period of pain in the lower back lasting for more than 24 hours, preceded and followed by a period of at least 1 month without low back pain. An episode of care for low back pain was defined as a consultation or a series of consultations for low back pain, preceded and followed by at least 3 months without consultation for low back pain. An episode of work absence due to low back pain was defined as a period of work absence due to low back pain, preceded and followed by a period of at least 1 day at work.

Conclusions. In many studies, episodes of low back pain are mentioned without a clear definition. We consider our proposed definitions of episodes to be arbitrary but well considered. We advise that they be tested for use in future research. [Key words: episodes, review, definitions, low back pain, clinical course, care, work absence, recurrence] *Spine* 2002;27:2409–2416

Most people will suffer from low back pain (LBP) at least once in their life, and many of them will experience more than one period of LBP.⁴⁶ The pain may subside and disappear for a while and then recur or reappear a few

months or years later. The pain may also linger for some time and flare up periodically. If these flare-ups are both-ersome, this may prompt the patient to seek medical care or to have time off work. Low back pain can therefore be characterized as an episodic disease. Unfortunately, available data on the natural history and clinical course of LBP are often incomplete and confusing. Nachemson and Bigos²⁸ proposed definitions for acute and chronic LBP, which Von Korff⁴⁵ refined by clarifying ambiguities and enlarging the taxonomy. This was done by defining transient back pain, recurrent back pain, chronic back pain, acute back pain, first onset, and flare-up. These definitions are important for both clinicians and re-searchers interested in the onset, prognosis, and clinical course of LBP. In this set of definitions, however, an important one for researchers is missing; namely, the definition of an episode.

There are several situations for which a clear defini-tion of an episode is needed. First, it is common in cohort studies to focus on the development of new episodes of back pain. In theory, cohort studies examining risk fac-tors for the occurrence of a specific disease require pa-tients who are free of the disease at inclusion. Studying the risk factors for LBP, a population that has never had LBP before is not only a small population but is also likely to be a very young one. Because LBP is an episodic disease, it is more appropriate to study patients who have been free of LBP for a specific period and who can thus be considered at risk for a new episode of LBP. Second, in randomized clinical trials, one sometimes wishes to study acute or subacute patients. The important question in the identification of these patients is when the current epi-sode actually started, and whether the preceding period was indeed free of LBP. Third, in long-term follow-up in randomized clinical trials and cohort studies, we need to monitor symptoms over time and identify and distin-guish resolution, persistence, and recurrence of symp-toms, as well as the occurrence of new episodes. In this situation also, a proper definition of an episode is essential.

So several fundamental aspects of studying LBP rely on the identification of episodes. Or as Buckle³ puts it: “The frequency of attacks and the number of episodes of back pain can create problems for the researchers” (p. 320). To improve the understanding of the etiology, clin-ical course, and prognosis of back pain, standardized operational definitions of episodes need to be applied in longitudinal research. For that reason, we have at-

From the *Institute for Research in Extramural Medicine, and the †Department of Social Medicine, ‘Vrije Universiteit’ Medical Centre, Amsterdam, The Netherlands; the ‡Centre for Primary Care Sciences, Keele University, Stoke on Trent, §Department of Public Health, Uni-versity of Liverpool, Liverpool, and ||Unit of Chronic Disease Epidemi-ology, Arthritis Research Campaign Epidemiology Unit, University of Manchester, Manchester, United Kingdom.

Acknowledgment date: July 3, 2001.

First revision date: October 25, 2001.

Second revision date: March 21, 2002.

Acceptance date: April 22, 2002.

The manuscript submitted does not contain information about medical device(s)/drug(s).

The Dutch Organisation for Scientific Research funded a 1-week visit for H. C. W. de Vet to Keele University and Manchester University, United Kingdom. Federal funds were received in support of this work. No benefits in any form have been or will be received from a commer-cial party related directly or indirectly to the subject of this manuscript.

DOI: 10.1097/01.BRS.0000030307.34002.BE

tempted to define episodes of LBP in a way that is tenable and applicable in research and in clinical practice.

In this article, we first present our findings from the literature review on explicitly and implicitly used definitions in papers on episodes of LBP, episodes of care for LBP, and episodes of work absence because of LBP. Then we consider the proposal of uniform definitions of episodes and discuss applications and implications for future standardized use.

■ Methods

The literature search aimed to identify papers in which episodes of LBP were defined and/or in which specific definitions of episodes of LBP were used. First we searched in Medline (1966–2000) using a combination of the MESH terms “back pain,” “backache,” or “back ache” with “episod*,” “period*,” “recurr*,” “relapse,” “intermitt*,” “inciden*,” “course,” “interval,” “initial*,” or “consult*” with “defin*,” “descript*,” “describ*,” “classif*,” “concept*,” “categoris*,” or “categoriz*.” This led to 890 papers. The titles and abstracts were examined by two reviewers independently (H.C.W.d.V. and M.W.H.) on the probability that the study contained a definition of episodes of LBP. In case of discrepancy or doubt, the study was included. This led to 37 potentially relevant papers. The second search strategy (Medline 1966–2000) consisted of the terms “back pain” and “episodes” in the titles or abstracts and identified 349 papers. Using the same procedure, 44 additional papers were included. Furthermore, textbooks^{2,11,29,47} on LBP were screened, and the references in all retrieved papers were checked for additional papers in which explicit definitions of episodes of low back could be found. This did not yield additional papers.

The following information was extracted from the papers: the definition of an episode if presented or if derivable, study setting, type of back pain, minimum duration of the LBP-free period before entry into a study, minimum period between two distinct episodes, duration of the episodes, outcome measure used, and intensity of LBP. Data were extracted independently from each of the 81 papers by two of four authors (H.C.W.d.V., M.W.H., K.M.D., D.P.P.). Afterwards, the results were compared, and consensus was reached by discussion. All reviewers and data extractors are experienced researchers in the field of LBP. The papers were grouped into three categories. The first category concerned papers with data about LBP, usually obtained by interview or questionnaire from the patients. The second category consisted of papers presenting data about care for LBP, obtained either from health care registries or by inquiry of the patient. The third category dealt with papers with data on work absenteeism due to LBP, derived from registries or reported by the patients or occupational physicians. Some papers fit into more than one category.

The data from the literature formed the starting point for the group discussions. In this way, a large number of international researchers indirectly gave input to the discussions. In the group meetings, in which all authors participated, the different definitions were proposed, and it was discussed how tenable and applicable they were.

■ Results

Literature Data on Episodes

Of the 81 papers examined, only 31 contained a (mostly implicit) definition of episodes of LBP (references of the

other papers can be obtained on request from the first author). The data from these 31 papers are presented in Table 1 for 16 studies on LBP,^{5–10,14,22–24,31–33,35,44,48} in Table 2 for 9 studies on care for LBP,^{12,17,25,27,36–39,42} and in Table 3 for 6 studies on work absenteeism due to LBP.^{1,16,19–21,30} In these tables, we distinguish between definitions focusing on the minimum duration of the LBP-free period before the start of a new episode (*e.g.*, for inclusion of a cohort study or a randomized clinical trial) and definitions focusing on the minimum duration of the LBP-free period between two episodes in longitudinal studies on the course of LBP. The tables also show the minimum duration of the pain-free period, how these data were assessed, and further information on the design and the aim of the study.

There was a large variation in the minimum duration of LBP-free periods used to define episodes. The choice for one or another (implicit) definition of an episode was never supported by arguments or scientific considerations, making them all arbitrary. In some categories, the number of studies was too small to conclude what minimum duration of LBP-free period is typically used. Studies in occupational epidemiology often made use of registries. In these, the characteristics and details of the different registries determined which data were available to define episodes.

Considerations on Episodes From the Literature

Given the heterogeneity of the definitions identified from the literature review, it was impossible to recommend a uniform definition from the literature alone. Nevertheless, examination of the literature was helpful because some papers provided arguments for the choices they had made, even if these were typically described as arbitrary.^{25,37–39} If we found arguments in the papers, it was usually for not distinguishing different episodes, as illustrated by the following citations. Abenhaim *et al*¹ stated that “there is no objective way to determine if a given episode of back symptoms is independent or not from a previous injury. In the absence of such evidence, it would be equally appropriate to consider every episode of back pain as a recurrence (relapsing symptoms for a previous injury) or as a new episode (independent from any previous medical history)” (p. 831). Smedley *et al*⁴¹ remarked, “. . . even with more complete information, there would have been difficulty in defining exactly when an episode of back pain has ended and subsequent symptoms represented a new episode rather than a continuation of the earlier illnesses” (p. 2425). And for the occupational setting, Infante-Rivard and Lortie²⁰ stated, “In our study we are not sure whether all relapses were new episodes, although average time to return to work from onset of treatment was very long (126 days), the shape of the cumulative survival curve suggested that some relapses or interruptions may have been due to untimely returns. . .” (p. 333). Krause *et al*²¹ remarked, “Researchers, therefore, have to choose from several options of creating outcome measures which are determined by

Table 1. Episodes of Low Back Pain

Reference	Duration of LBP-Free Period Before Entry	Method of Assessment	Setting	Design/Purpose of Study	Remarks
South Manchester Back Pain Study ^{3-10,22,23,31-33}	1 mo	Interview + questionnaire	General population	Cohort study on occurrence and risk factors for new episode of LBP	8 publications were included
Coste <i>et al</i> , 1994 ⁷	3 mos	Interview	Primary care	Cohort study to describe the natural history of acute LBP and study risk factors	Acute low back pain (<72 hrs)
Sundararajan <i>et al</i> , 1998; Carey <i>et al</i> , 2000 ^{6,44*}	2 mos	Interview	Primary care, chiropractors	Cohort study to describe patterns of provider use associated with acute LBP and costs	2 publications about the same study
Reis <i>et al</i> , 1999 ³⁵	1 mo no LBP; 2 mos no back disability	Interview	Primary care	Cohort study on the natural history of LBP and predictors of chronicity	
Feyer <i>et al</i> , 2000 ¹⁴	12 mos	Questionnaire	Occupational	Cohort study to examine risk factors for onset of LBP in health care workers	Study was performed in nursing students

Reference	Duration of LBP-Free Period Between Two Episodes	Method	Setting	Design/Purpose of Study	Remarks
Waxman <i>et al</i> , 2000 ⁴⁸	1-3 yrs	Questionnaire	General population	Cohort study on natural history of low back pain	Based on questionnaires 3 yrs apart
Carey <i>et al</i> , 1999 ^{5*}	Unknown	Interview	Primary care + chiropractor	Cohort study on relationship between initial care and the likelihood of recurrence of LBP	Explicit definitions on recurrence
McGorry <i>et al</i> , 2000 ²⁴	Unknown	Diary	Advertisements for LBP patients	Observational study on the course of chronic and recurrent LBP	Explicit definition given of a flare-up

* The studies of Carey *et al*,⁶ Sundarajan *et al*,⁴⁴ and Carey *et al*,⁵ are based on the same data. In the study of Carey *et al*,⁵ recurrence at 6 and 12 months is studied in cases recovered after 12 weeks. Carey *et al*,⁶ studied chronic cases and do not define recurrence. Sundararajan *et al*,⁴⁴ studied etiology and not the course. LBP = low back pain.

conceptual considerations, kind and availability of administrative data, and data management resources” (p. 605).

Garcy *et al*¹⁶ suggested that an injury in the same spinal anatomic area could be considered as recurrent back pain and in another spinal anatomic area as a new episode.

Group Discussions

The results presented in Tables 1 to 3 formed the starting point for the group discussions. Because the literature data were sparse and showed a large variation, arbitrary choices had to be made. Six discussion sessions among the authors (at least four participating each time) were necessary to come to resulting definitions, which are presented in Figure 1. Topics during these meetings were as follows: considerations of arguments found in literature on episodes (described above); the justification of the definitions, in terms of duration of the pain-free period, the correspondence (or lack of it) between the three definitions; the focus on pain or disability; and considerations of feasibility and applicability in research and in clinical practice.

Justification of the Definitions

We started with a definition of an episode of LBP as a period of LBP preceded and followed by 1 month without LBP. The period of 1 month is regularly used in

research and is also a realistic option taking the limited ability of pain recall by the patients into account.

When focusing on episodes of care, we considered a 3-month gap between two episodes reasonable, although we acknowledge that there are patients with chronic LBP who do not seek medical care every 3 months. It is known that most patients do not seek medical care immediately when they experience LBP.⁸ Moreover, the care provider typically does not know when an episode of LBP ends, as the patient will usually not visit him when the complaints have disappeared or may cease to visit despite having pain. Therefore, the duration of the LBP-free period for “pain-based” definitions of an episode ought to be shorter than the corresponding “care-based” episode. Choosing a period longer than 3 months between two different episodes would still not solve the problem of nonconsulting patients with persistent LBP. Furthermore, the existence of waiting lists for advanced diagnostic procedures or treatments of more than 3 months may lead to misclassification if the data collection is register based.

It is important to note that “care-based” episodes are not intended to replicate “pain-based” episodes but exclusively focus on episodes of LBP for which medical care was sought. Many determinants of seeking care can be considered, pain being only one of these. The “care-

Table 2. Episodes of Care for Low Back Pain

Reference	Duration of Care-Free Period Before Entry	Method	Setting	Design/Purpose of Study	Remarks
Roland <i>et al</i> , 1983 ³⁶	No consultation in last 28 days	Interview	Primary care	Cohort study on the natural history of LBP and predictors of outcome	
Miller <i>et al</i> , 1999 ²⁷	No consultation in last 6 mos	GP record	Primary care	Exploring feasibility of patient diaries as a source of qualitative information on LBP	
Goertz, 1990 ¹⁷	No consultation in last 3 mos	Medical chart	Occupational	Chart review of patients with LBP to identify outcome indicators for acute LBP	
Dettori <i>et al</i> , 1995 ¹²	No medical care for LBP in last 6 mos	Interview	Occupational	RCT on effects of flexion and extension exercises and postures among soldiers with acute LBP	Study in soldiers
Reference	Duration of Care-Free Period Between Two Episodes	Method	Setting	Design/Purpose of Study	Remarks
Shekelle <i>et al</i> , 1995 ³⁷⁻³⁹	3 mos	Registries	Primary care	Observational study on epidemiology and risk/prognostic factors for LBP and costs of care	Clear definitions on episodes
Smith & Stano, 1997 ⁴²	42 days	Registries	Primary care + chiropractors	Retrospective analysis of health insurance data for recurrent episodes of care for LBP	
McPhillips-Tangum <i>et al</i> , 1998 ²⁵	3 mos	Database	Managed health care plans	Qualitative study to identify key motivations of patients seeking medical care for chronic LBP	

LBP = low back pain; GP = general practitioner; RCT = randomized clinical trial.

based” definition is applicable to all forms of care for LBP that are registered.

For an episode of work absence due to LBP, we had difficulties in defining a reasonable minimum absence-free period. Work absence data are very often extracted from registries that contain no or minimal information about the pain, the disability, or the clinical characteristics of the patient. We conducted a small survey of social security systems in a few countries and found that the way in which work absence registries are set up differs substantially between countries and depends on the workers’ compensation system in place. From the literature review, it appeared that studies on work absence using registry data^{1,21,30} required only 1 or a few days of return to work to separate two episodes of work absence due to LBP, although 1 or a few days back at work is possibly a failed “return to work” trial. Patients with back pain go on sick leave and remain at home for other reasons than (only) their back pain. On the contrary, many patients with LBP will not take time off work.¹⁵ Hence, even periods of work absence of 3 months apart may be due to the same underlying episode of LBP. Obviously, work absence due to LBP is not a good proxy for an episode of LBP, as work absence is determined by a large number of factors other than pain. If we had chosen 1, 2, or 4 weeks of return to work in between two episodes, it might be suggested that the absence-based episodes reflect episodes of LBP. With the choice of a minimum of 1 day of work resumption to demarcate two

distinct episodes of work absence due to LBP, it is clear that an episode of work absence due to LBP does not replicate or stand as a proxy for an episode of LBP.

The proposed definition of episode of work absence implies that the episode of work absence due to LBP continues as long as a patient remains disabled for work. If a patient with LBP returns to work but ends up in a less demanding job or with adaptations at the workplace, the work absence due to back pain ends at the moment the patient starts his new ultimate job.

Focus on Episodes of Back Pain or Back Disability

We had also extracted data from the papers about the outcome measures on which an episode definition was based, such as pain or disability, and its intensity. We rejected the inclusion of intensity into the definition because we did not identify any paper that made use of the intensity of pain to define episodes of LBP. In the case of care utilization and work absenteeism, it is assumed that the complaints are severe enough to prompt medical consultation or sick leave, respectively.

We extensively discussed whether we should base the definitions on LBP or on disability due to back pain. Both are relevant phenomena for the patient. We thought that asking about “disabling back pain,” or pain that limits daily activities, increases the complexity for the patient. It is less ambiguous for the patient to state whether they have had pain during a specific

Table 3. Episodes of Work Absence Due to Low Back Pain

Reference	Duration of Period Without Sick Leave Before Entry	Method	Setting	Design/Purpose of Study	Remarks
Infante-Rivard, 1996 ¹⁹	No more than 1 day in 5 yrs	Interview	Occupational	Cohort study to identify which factors during baseline and treatment influenced time to return to work	
Reference	Duration of "On-Work" Period Between Two Episodes	Method	Setting	Design/Purpose of Study	Remarks
Oleinick <i>et al</i> , 1996 ³⁰	>7 days	Registry	Occupational	Cohort study to identify factors that predict missed work time for the first disability period after injury	
Abenham <i>et al</i> , 1988 ¹	>1 day	Registry	Occupational	Cohort study in which a random sample of back injury cases was followed up to assess the recurrence rate of back problems	Clear definitions presented
Garcy <i>et al</i> , 1996 ¹⁶	Unknown	Interview	Occupational	Cohort study to assess prevalence and risk factors for new or recurrent injuries in chronic LBP	Clear definitions presented
Krause <i>et al</i> , 1999 ²¹	>1 day	Registry	Occupational	Cohort study on duration of work disability and exploring alternative methods for measurement of duration	Clear definitions presented
Infante-Rivard, 1997 ²⁰	Unknown	Interview	Occupational	Cohort study of LBP patients that had returned to work to measure the incidence of relapse	Clear definitions presented

LBP = low back pain.

period of time. Therefore, we decided to use only the term "low back pain."

Considerations of Feasibility and Applicability

We introduced some pragmatic considerations to the discussion. We rejected the idea by Garcy *et al*¹⁶ of including anatomic site into the definition because patients certainly might have new episodes in the same anatomic location and because it is difficult (especially for patients) to determine whether the same anatomic region is involved.

With respect to the choice of minimum duration of the LBP-free period before and after an episode, we considered the ability of patients to recall previous pain. The choice of "1 day back in original work" to distinguish two episodes of work absence, for example, was partly driven by practical concerns. In most studies, it is known whether a worker has resumed his original job but not always the exact period of resumption. Finally, we compared our definitions with what, to our knowledge, occurs in clinical practice, to determine the potential exter-

Proposed definitions:

An episode of *low back pain* is defined as a period of pain in the lower back lasting for more than 24 hours, preceded and followed by a period of at least one month without low back pain.

An episode of *care for low back pain* is defined as a consultation or a series of consultations for low back pain, preceded and followed by at least three months without consultation for low back pain.

An episode of *work absence due to low back pain* is defined as a period of work absence due to low back pain, preceded and followed by a period of at least one day at work.

Figure 1. Definitions of episodes of low back pain, care, and work absence.

nal validity of future studies using the proposed definitions.

■ Discussion

The need for uniform definitions for episodes of LBP was underlined in three ways. First, there was a lack of explicit definitions of LBP episodes in the literature. In some papers using data from registries, episodes or recurrences were defined *ad hoc* for the purpose of the study at issue.^{1,21,37-39} Second, we found a substantial number of studies that reported on episodes without defining them.^{4,14,18,26,40,43} Some of these asked patients to report the number of episodes they had had in a previous specified period, without presenting any definition. This approach essentially uses the individual patients' ideas of what constitutes an "episode." However, patients may have very different perceptions of this, which makes the answers to this question unsatisfactory for clinical and epidemiologic studies. Third, some papers stress the need for methods to improve the description of the course of LBP. Von Korff⁴⁵ stated, "Improved information on the natural history of back pain is needed to enable doctors and their patients to understand the likely course of back pain" (p. 2045S). Moreover, different etiologies and causes add to the complexity of definition of recurrent back pain and distinct episodes. In addition, Smith and Stano⁴² remarked, "Further research needs to more carefully address problems of identifying and separating episodes because the methods can substantially affect the results" (p. 10).

If episodes were used in the literature, they were applied in many different ways. None of the definitions was supported by scientific arguments, implying that they were all arbitrary or pragmatic choices.

Our literature search yielded a large number of articles. However, it is possible that some papers providing explicit definitions of LBP episodes were missed. This might be the case, especially for definitions given little emphasis in the article at issue. However, we did not find further references in any of the retrieved papers to other published explicit definitions of episodes. We inevitably have missed a large number of studies using implicit definitions of episodes of LBP. In most randomized clinical trials and cohort studies on LBP, it is likely that such implicit definitions have been used. If the authors have put emphasis on episodes, we probably retrieved the paper, while missing an unknown number of others. We conclude that the literature has given us a reasonable impression of what types of definitions of episodes have been used in studies on LBP.

The definitions that we propose for an episode of LBP are most applicable in patients who do indeed have clear periods of LBP, alternating with LBP-free periods. For persons with chronic LBP who often do not experience LBP-free periods at all, episodes according to our definition cannot be identified. In those situations, we suggest use of the term "flare-up," according to the definition proposed by Von Korff.⁴⁵ He defined a flare-up of back

pain as a phase of pain superimposed on a recurrent or chronic course. A flare-up refers to a period (usually 1 week or less) when back pain is markedly more severe than is usual for the patient at issue.

Furthermore, Von Korff⁴⁵ defined chronic back pain as back pain present on at least half of the days in a 12-month period in a single or in multiple episodes; recurrent back pain as back pain present on less than half of the days in a 12-month period, occurring in multiple episodes over the year; transient back pain as an episode in which back pain is present on no more than 90 consecutive days and which does not recur over a 12-month observation period; and acute back pain as pain that is not recurrent or chronic (as defined above) and whose onset is recent and sudden. The LBP-free periods inherently included in these definitions are quite long. For example, in transient back pain, the definition requires the patient to be free of pain during 12 months. We think that considerably shorter disease-free periods should be used for distinguishing different episodes. Thus, multiple episodes, according to our proposed definitions, fit in a course of recurrent and chronic LBP, as defined by Von Korff.⁴⁵

As mentioned earlier, we opted to ask about LBP instead of LBP-related disability. This does not preclude an additional assessment of disability. There might be situations in which there are strong arguments for focusing on back pain-related disability. Clear instructions for the patient on how to interpret such a question are needed. Also when inquiring about LBP, it is important to ensure that the obtained information is both reliable and valid. Prespecification of the region of interest, *e.g.*, by the use of mannequins, is advocated rather than putting the responsibility of identifying the back region on the patients.³⁴ The longer the period over which information is asked retrospectively, the less likely the responses will be valid, given inaccuracy of recall. Suppose, for example, that patients with LBP for between 2 weeks and 3 months duration are included in a study. These patients have LBP for a relatively short period only. We assume it to be quite feasible for such patients to answer the question: "How long is it since you had a whole month without any back pain?"

Studies on LBP are difficult to compare because of different definitions of episodes. This paper has proposed uniform definitions for episodes and recommends their use in future research on LBP. This will make studies on LBP more comparable in the future. However, this is no substitute for the task of carefully monitoring the course of back pain, together with the disability it causes, the medical consultations to which it leads, and the accompanying periods of work absence.

Until now, the episodic nature of LBP has often been ignored in epidemiologic research, not only by the lack of clear definitions for episodes of LBP, episodes of care, or episodes of work absence, but also by the design of the studies. In cohort studies, a disease-free population is usually chosen to identify risk factors for LBP. Because of

its episodic nature, patients with LBP might also be included in the population at risk because they may continue to experience LBP over time, become pain free, or develop new episodes of LBP. Similarly, cohort studies on prognostic factors may include patients who have experienced an episode of LBP previously but at the start of the cohort study are free of LBP. They are again at risk of experiencing a next episode. Investigators should conceptualize LBP as a dynamic process, monitoring the clinical course of the disease over time rather than only performing measurements of pain and/or disability at specific moments. The analysis of these studies should also take this episodic nature into account. This means that simple survival analysis, to examine time until the next episode, or logistic regression analysis to evaluate the presence of low back at a certain moment, considers only part of the LBP problem. To study the clinical course with its episodes, and eventually flare-ups, more advanced designs and statistical methods are required.¹³

The proposed, uniform definitions are arbitrary but well-considered definitions of episodes. We do not suggest that all researchers should use these definitions without regard to scientific and pragmatic considerations. But if they have no good arguments for another choice, they may use the definitions proposed here. We recommend their use in research on the course of LBP and simultaneous evaluation of their applicability. The proposed definitions draw explicit attention to the episodic nature of the course of LBP and hopefully bring an end to the heterogeneity in arbitrary definitions of episodes.

■ Key Points

- Few explicit definitions of episodes of low back pain were found in the literature.
- This article proposes three definitions: for an episode of low back pain, for an episode of care for low back pain, and for an episode of work absence resulting from low back pain.
- These definitions will hopefully lead to a more uniform and sensible use of the concept of episodes in future research.

Acknowledgment

The authors thank Rienk Prins, AS/tri, The Netherlands, for inquiring in different countries about definitions of work absence.

References

1. Abenham L, Suissa S, Rossignol M. Risk of recurrence of occupational back pain over three year follow up. *Br J Ind Med* 1988;45:829–33.
2. Anderson GBJ. *The Epidemiology of Spinal Disorders*. 2nd ed. New York, NY: Raven Press; 1997.
3. Buckle P. Epidemiological aspects of back pain within the nursing profession. *Int J Nurs Stud* 1987;24:319–24.
4. Burton AK, Tillotson KM, Troup JD. Prediction of low-back trouble frequency in a working population. *Spine* 1989;14:939–46.
5. Carey TS, Garrett JM, Jackman A, et al. Recurrence and care seeking after acute back pain: results of a long-term follow-up study. *North Carolina Back Pain Project*. *Med Care* 1999;37:157–64.
6. Carey TS, Garrett JM, Jackman AM. Beyond the good prognosis: examination of an inception cohort of patients with chronic low back pain. *Spine* 2000;25:115–20.
7. Coste J, Delecoeuillerie G, Cohen de Lara A, et al. Clinical course and prognostic factors in acute low back pain: an inception cohort study in primary care practice. *Br Med J* 1994;308:577–80.
8. Croft PR, Macfarlane GJ, Papageorgiou AC, et al. Outcome of low back pain in general practice: a prospective study. *Br Med J* 1998;316:1356–9.
9. Croft PR, Papageorgiou AC, Ferry S, et al. Psychologic distress and low back pain: evidence from a prospective study in the general population. *Spine* 1995;20:2731–7.
10. Croft PR, Papageorgiou AC, Thomas E, et al. Short-term physical risk factors for new episodes of low back pain: prospective evidence from the South Manchester Back Pain Study. *Spine* 1999;24:1556–61.
11. Crombie IK, Croft PR, Linton SJ, et al., eds. *Epidemiology of Pain*. Seattle: IASP Press, 1999.
12. Dettori JR, Bullock SH, Sutlive TG, et al. The effects of spinal flexion and extension exercises and their associated postures in patients with acute low back pain. *Spine* 1995;20:2303–12.
13. Eisen EA. Methodology for analyzing episodic events. *Scand J Work Environ Health* 1999;25:36–42.
14. Feyer AM, Herbison P, Williamson AM, et al. The role of physical and psychological factors in occupational low back pain: a prospective cohort study. *Occup Environ Med* 2000;57:116–20.
15. Frank JW, Pulcins IR, Kerr MS, et al. Occupational back pain: an unhelpful polemic. *Scand J Work Environ Health* 1995;21:3–14.
16. Garcy P, Mayer T, Gatchel RJ. Recurrent or new injury outcomes after return to work in chronic disabling spinal disorders: tertiary prevention efficacy of functional restoration treatment. *Spine* 1996;21:952–9.
17. Goertz MN. Prognostic indicators for acute low-back pain. *Spine* 1990;15:1307–10.
18. Heliövaara M, Sievers K, Impivaara O, et al. Descriptive epidemiology and public health aspects of low back pain. *Ann Med* 1989;21:327–33.
19. Infante-Rivard C, Lortie M. Prognostic factors for return to work after a first compensated episode of back pain. *Occup Environ Med* 1996;53:488–94.
20. Infante-Rivard C, Lortie M. Relapse and short sickness absence for back pain in the six months after return to work. *Occup Environ Med* 1997;54:328–34.
21. Krause N, Dasinger LK, Deegan LJ, et al. Alternative approaches for measuring duration of work disability after low back injury based on administrative workers' compensation data. *Am J Ind Med* 1999;35:604–18.
22. Macfarlane GJ, Thomas E, Croft PR, et al. Predictors of early improvement in low back pain amongst consultants to general practice: the influence of pre-morbid and episode-related factors. *Pain* 1999;80:113–9.
23. Macfarlane GJ, Thomas E, Papageorgiou AC, et al. Employment and physical work activities as predictors of future low back pain. *Spine* 1997;22:1143–9.
24. McGorry RW, Webster BS, Snook SH, et al. The relation between pain intensity, disability, and the episodic nature of chronic and recurrent low back pain. *Spine* 2000;25:834–41.
25. McPhillips-Tangum CA, Cherkin DC, Rhodes LA, et al. Reasons for repeated medical visits among patients with chronic back pain. *J Gen Intern Med* 1998;13:289–95.
26. Miedema HS, Chorus AM, Wevers CW, et al. Chronicity of back problems during working life. *Spine* 1998;23:2021–9.
27. Miller JS, Pinnington MA, Stanley IM. The early stages of low back pain: a pilot study of patient diaries as a source of data. *Fam Pract* 1999;16:395–401.
28. Nachemson A, Bigos SJ. The low back. In: Cruess JRW, ed. *Adult Orthopedics*. New York, NY: Churchill-Livingstone; 1984:843–937.
29. Nachemson AL, Jonsson E. *Neck and Back Pain: The Scientific Evidence of Causes, Diagnosis and Treatment*. Philadelphia, PA: Lippincott Williams & Wilkins; 2000.
30. Oleinick A, Gluck JV, Guire K. Factors affecting first return to work following a compensable occupational back injury. *Am J Ind Med* 1996;30:540–55.
31. Papageorgiou AC, Croft PR, Thomas E, et al. Influence of previous pain experience on the episode incidence of low back pain: results from the South Manchester Back Pain Study. *Pain* 1996;66:181–5.
32. Papageorgiou AC, Croft PR, Thomas E, et al. Psychosocial risks for low back pain: are these related to work? *Ann Rheum Dis* 1998;57:500–2.
33. Papageorgiou AC, Macfarlane GJ, Thomas E, et al. Psychosocial factors in the workplace: do they predict new episodes of low back pain? Evidence from the South Manchester Back Pain Study. *Spine* 1997;22:1137–42.
34. Pope DP. Prevalence of shoulder pain in the community: the influence of case definition. *Ann Rheum Dis* 1997;56:308–12.
35. Reis S, Hermoni D, Borkan JM, et al. A new look at low back complaints in primary care: a RAMBAM Israeli Family Practice Research Network study. *J Fam Pract* 1999;48:299–303.
36. Roland MO, Morrell DC, Morris RW. Can general practitioners predict the outcome of episodes of back pain? *Br Med J* 1983;286:523–5.

37. Shekelle PG, Markovich M, Louie R. Comparing the costs between provider types of episodes of back pain care. *Spine* 1995;20:221–7.
38. Shekelle PG, Markovich M, Louie R. Factors associated with choosing a chiropractor for episodes of back pain care. *Med Care* 1995;33:842–50.
39. Shekelle PG, Markovich M, Louie R. An epidemiologic study of episodes of back pain care. *Spine* 1995;20:1668–73.
40. Skargren EI, Carlsson PG, Oberg BE. One-year follow-up comparison of the cost and effectiveness of chiropractic and physiotherapy as primary management for back pain: subgroup analysis, recurrence, and additional health care utilization. *Spine* 1998;23:1875–84.
41. Smedley J, Inskip H, Cooper C, et al. Natural history of low back pain: a longitudinal study in nurses. *Spine* 1998;23:2422–6.
42. Smith M, Stano M. Costs and recurrences of chiropractic and medical episodes of low-back care. *J Manipulative Physiol Ther* 1997;20:5–12.
43. Soukup MG, Glomsrod B, Lonn JH, et al. The effect of a Mensendieck exercise program as secondary prophylaxis for recurrent low back pain: a randomized, controlled trial with 12-month follow-up. *Spine* 1999;24:1585–92.
44. Sundararajan V, Konrad TR, Garrett J, et al. Patterns and determinants of multiple provider use in patients with acute low back pain. *J Gen Intern Med* 1998;13:528–33.
45. Von Korff M. Studying the natural history of back pain. *Spine* 1994;19(suppl):2041–6.
46. Waddell G. A new clinical model for the treatment of low back pain. *Spine* 1987;22:128–56.
47. Waddell G. *The back pain revolution*. Edinburgh: Churchill Livingstone, 1998.
48. Waxman R, Tennant A, Helliwell P. A prospective follow-up study of low back pain in the community. *Spine* 2000;25:2085–90.

Address correspondence to

Prof. Dr. Henrica C. W. de Vet
Institute for Research in Extramural Medicine
‘Vrije Universiteit’ Medical Centre
 Van der Boechorststraat 7
 NL-1081 BT Amsterdam, The Netherlands
 E-mail: hcv.de_vet.emgo@med.vu.nl

Point of View

David F. Fardon, MD

Dr. de Vet and colleagues offer a small but important piece to complete the puzzle of how to define back pain. Unfortunately, their piece does not fit exactly with the existing pieces provided by Von Korff and others. They provide good reasons for their variance. That minor issue needs to be resolved so that all pieces fit together, and perhaps other pieces need to be added. Then they need to address the problems of acceptance. Perhaps they should expand the group looking at these terms to include members from more varied research backgrounds and clinical

disciplines, more diverse locations, and other practice circumstances. A group too large cannot function, but one too small and insular is challenged to gain the general application that is needed to avoid the very large mistakes that can occur if proper attention is not given to terminology. Their statement, “Use of these definitions will improve the comparability of future studies,” is simple but important. Additional effort to see that it happens should be encouraged.

From the Knoxville Orthopedic Clinic, P.A., Knoxville, Tennessee. The manuscript submitted does not contain information about medical device(s)/drug(s).

No funds were received in support of this work. No benefits in any form have been or will be received from a commercial party related directly or indirectly to the subject of this manuscript.

DOI: 10.1097/01.BRS.0000030308.48639.36

Address correspondence to

David F. Fardon, MD
 1128 Weisgarber Road
 Knoxville, TN 37909
 E-mail: Dfardon@aol.com